

23 September 2002

**RUSI/CGP
Advanced Technology
Conference**

**Meeting C4ISTAR Requirements:
Implementing and Exploiting Technology
Solutions**

A Perspective from the UK

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ECC-Information Superiority

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Meeting C4ISTAR Requirements:

Implementing & Exploiting Technology Solutions

“We place a premium on the ability to generate **innovative solutions**, or adopt those generated by others. By **adapting and integrating them rapidly** into equipment, systems and force structures, we can ensure their **early use** on **operations**.”

Lord Bach, Min(DP)

12 September 2001



Implementing C4ISTAR Technology Solutions

Lessons from the “dotcom bubble”?

- **Operational realities remain**
- **Must deliver benefits to commanders**
- **Change, adaptability, flexibility valued above stability and predictability**
- **Infrastructure is means not end**
- **Connectivity does not imply integration**



Meeting C4ISTAR Requirements: Implementing & Exploiting Technology Solutions

“What is needed from the military is a **clearer elucidation of its capability requirements for C4ISTAR,** and what is needed from industry is a clearer picture of whether it can develop such capability and deliver it as required to the operator.”

From the preamble to this Conference



Meeting C4ISTAR Requirements:

Implementing & Exploiting Technology Solutions

- Over-riding importance of Joint and Multi-National operations
- Handling information technology cycle
- Aggressive development of C2 and counter-C2 capability by allies and potential enemies
- Exploit investments in CIS, planned and already made
- Understand pressures and priorities in own forward programme
- Develop hard-edged view of technology opportunities
- Show costs of “do nothing different” options
- Develop standards into international architectures



Meeting C4ISTAR Requirements:

Implementing & Exploiting Technology Solutions

Two cardinal errors

- ❑ **Assuming that this is all about technology**
- ❑ **Believing that nothing should be done until everything can be done**



Meeting UK C4ISTAR Requirements

The key C2 and Info Infrastructure capabilities

- ❑ Pass images and data from Intelligence agencies and sources to commanders
- ❑ Pass messages in time between commanders
- ❑ Conduct Information Operations



Meeting UK C4ISTAR Requirements

The key C2 and Info Infrastructure capabilities

- ❑ Pass images and data from Intelligence agencies and sources to commanders
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 - ❑ Conduct Information Operations
- ❑ Network infrastructure in UK forces and with allies
 - ❑ Information Services to sustain C2, planning and mission rehearsal at JC, JFC and CC levels



Meeting UK C4ISTAR Requirements

The key C2 and Info Infrastructure capabilities

- ❑ Pass images and data from Intelligence agencies and sources to commanders
- ❑ Pass messages in time between commanders
- ❑ Conduct Information Operations

- ❑ Bearer infrastructure resilience and capacity
- ❑ End-to-end security with allies
- ❑ Seamless structure for littoral operations

- ❑ Network infrastructure in UK forces and with allies
- ❑ Information Services to sustain C2, planning and mission rehearsal at JC, JFC and CC levels



Meeting C4ISTAR Requirements:

Implementing & Exploiting Technology Solutions

A New Environment but Enduring Patterns?

“... to evolve a much harder hitting, quicker moving and, above all, quicker deploying division than we ever had before.”



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Meeting C4ISTAR Requirements: Implementing & Exploiting Technology Solutions **A New Environment but Enduring Patterns?**

“... to evolve a much harder hitting, quicker moving and, above all, quicker deploying division than we ever had before.”

General Sir Philip Chetwode

GOC in C Aldershot Command - 12 Jan 1921

Quoted in David French

“Raising Churchill’s Army” (OUP 2001)



Network Enabled Capability

- ❑ “An integrated Equipment Capability Linking Sensors, decision makers and weapon systems so that information can be translated into synchronised and overwhelmingly rapid military effect at the optimum tempo.”

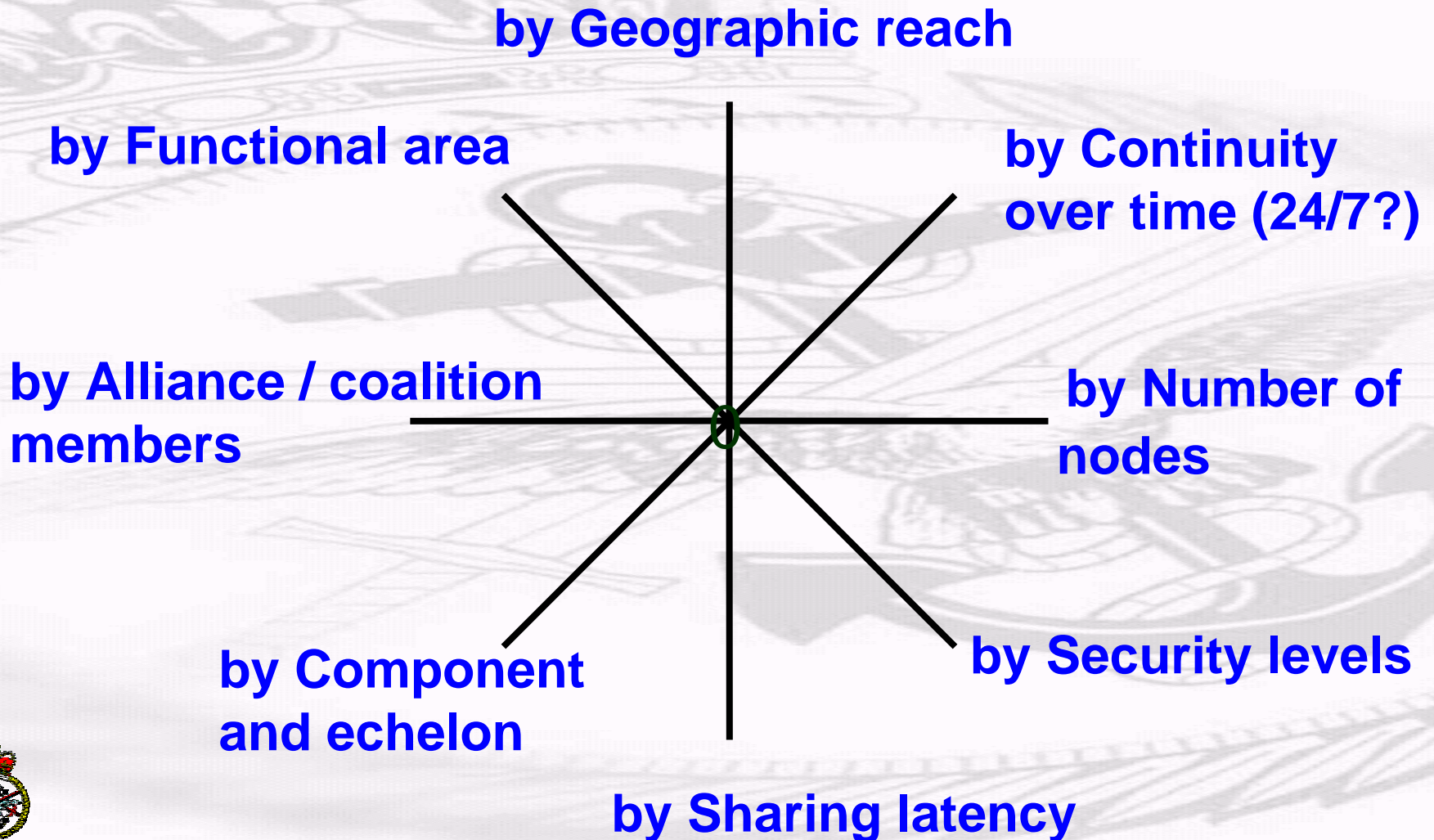
Developed from CM(IS) Scoping Note - 29 May 02



Meeting C4ISTAR Requirements:

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The operational attributes of shared information?



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A New Environment but Enduring Patterns?

“The difficulties of maintaining some degree of co-ordination among the British Services were severe enough, but they were nothing when compared with the problem of close co-operation with Allies who had an entirely different background of training.”

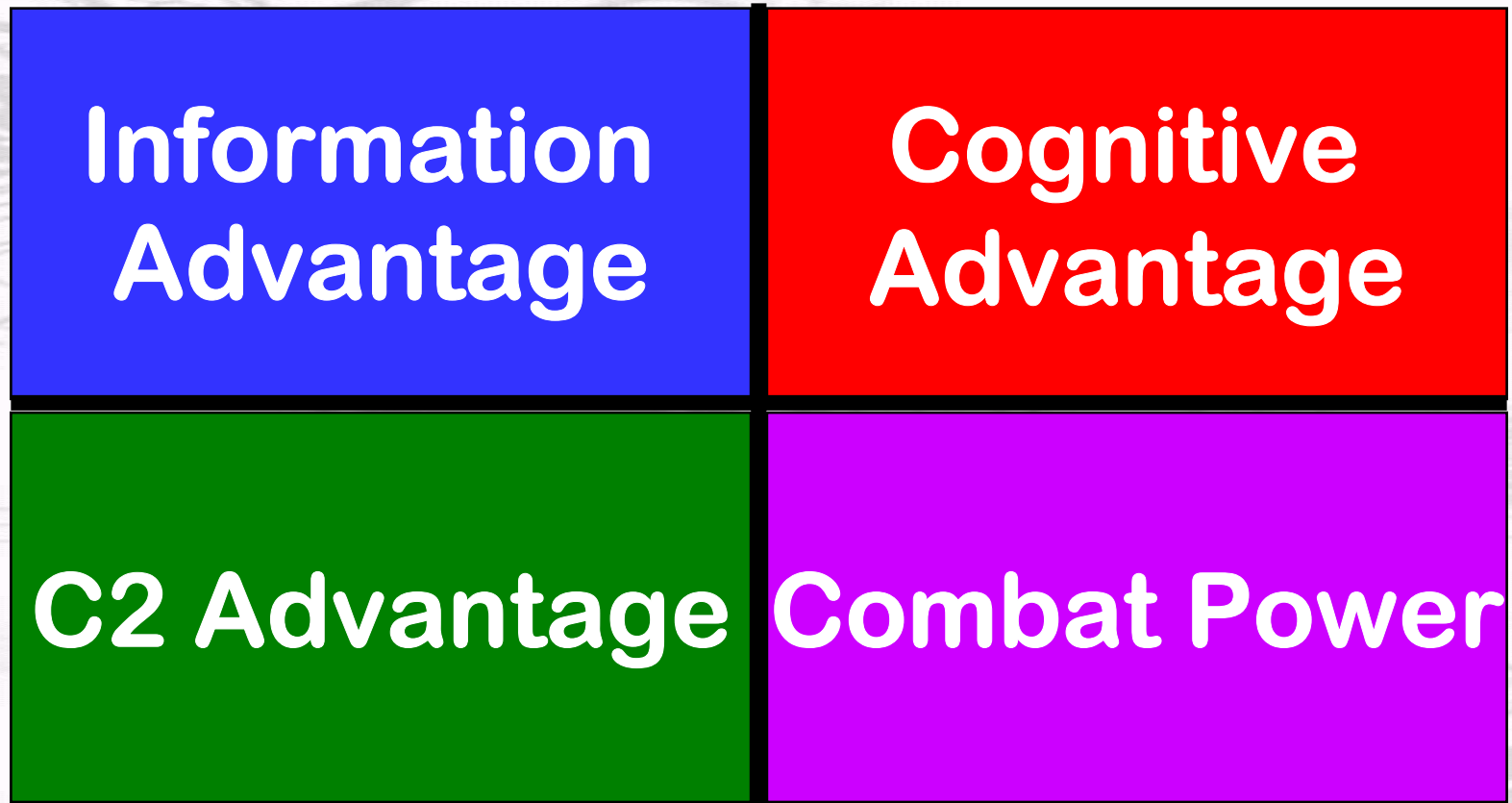
Colonel T R Gravely

***The Signalling Lessons of World War 2
War Office, London - 1950***



Exploiting C4ISTAR Technology Solutions

A new understanding of the benefits?



**Identify, develop and assess metrics to judge,
evaluate and improve the benefits**



UK NEC Research:

The dog that has yet to bark

❑ Education

❑ Experimentation

❑ Exploitation



Areas of NEC research potential?

- ❑ Set metrics for interoperability exploitation and to evaluate demonstrable operational benefits
- ❑ Real experiments with real units in real conditions
- ❑ Case study unavoidable (if unprogrammed) costs of retrospective integration
- ❑ Case study successful developed, maintained, adapted information systems
- ❑ Specifics for industry involvement & collaboration
- ❑ Exploiting JWID in the same year
- ❑ Metrics to show where Network Enabled Capability will make a difference and by when



Implementing C4ISTAR solutions

Are these the programme fundamentals?

- ☐ **Industry Involvement**
- ☐ **Interoperability**
- ☐ **Usability**
- ☐ **Security**
- ☐ **Commanders, staff, operators and users who understand what the system can and can't do, and how most effectively to exploit it**



Meeting C4ISTAR Requirements:

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A New Environment but Enduring Patterns?

Post 1918

“evolve a much harder hitting, quicker moving and, above all, quicker deploying division than we ever had before.”

Post 1945

“The difficulties of ... co-ordination among the British Services were severe enough, but they were nothing when compared with the problem of close co-operation with Allies who had an entirely different background of training.”

Post 2001

“We place a premium on the ability to generate innovative solutions, or adopt those generated by others. By adapting and integrating them rapidly into equipment, systems and force structures, we can ensure their early use on operations.”



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“The dangerous temptation of the hour is that we should consider rhapsody an adequate compensation for calculation.”

Lord Salisbury

then Prime Minister, speaking in June 1897



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